

Introduction

The purpose of this volume is to provide participants of the Women, Tobacco, and Cancer meeting an overview of currently funded research and activities in tobacco use and tobacco-related cancers as they relate to women. This volume can be used by meeting participants to identify gaps and research priorities, and identify and prioritize needs in dissemination and applications.

The research grants or activities described below were identified by several means. The National Organization of Tobacco Use Research Funders (NOTURF) consists of 21 government and private organizations. A list and a description of NOTURF members can be found immediately following the Index by Funding Organization. NOTURF members submit their extramural grant information into the NOTURF database; this database was queried with tobacco-related terms. Sixty-six grants relevant to women were found for studies active in FY2001. To gather grants from FY2002, and from organizations that had not yet submitted their FY2001 grants, the CRISP (Computer Retrieval of Information on Scientific Projects) database of NIH-funded grants was queried using search terms tobacco and female, with stem expansion logic of these terms. In addition, the websites of each NOTURF member were searched for relevant grants and activities. Additional activities were identified by searching NOTURF member websites, speaking to contact persons for various organizations, as well as by searching Google. Only grants or activities ongoing in 2001 and 2002 were considered “current.” Over 160 research grants and 11 activities (e.g., meetings, major websites, media campaigns) were found.

Grants and activities are grouped by breakout session so that participants may easily see which projects are relevant to their session. Most projects are relevant to more than one area (at least in part); these projects are described in each session for which they are relevant. It should be noted that assignment of projects to breakout sessions is subjective and susceptible to error. It is also likely that additional grants and activities may exist that were not found using the search procedures described above.

The following text summarizes projects by breakout session.

Biology & Cancer

Over 60 projects were found that address laboratory and clinical efforts to understand the biology and toxicology of nicotine as they pertain to women. Investigators have used both humans and animal models in these studies. One area of focus is smoking and cancer. The relationship between smoking and lung metastases is being investigated as a contributing factor to primary breast cancer mortality. Other investigators have found that a subset of women with atypical metabolisms may be at higher risk for breast cancer. The effects of tobacco smoke on mouse lungs are being investigated to try to explain the greater susceptibility of women to lung cancer. Several studies take smoking into account as a potential modifying factor in the risk of developing cancer. A second area of focus is the noncarcinogenic effects of smoking. The effects of smoking on cardiovascular disease are being studied in a postmenopausal mouse model. Another study is investigating homocysteine as a possible explanation for increased rates of cardiovascular disease in smokers. Interactions with female hormones and the menstrual cycle is being investigated in several studies. Researchers are determining the effect of smoking on female hormone levels, menstrual function, the oviduct and corpus luteum, and premenstrual symptoms. Other groups are investigating a link between smoking, estrogen, and kidney disease. A study on neurobiological effects is using a rodent model to determine if smoking affects serotonin activity. Another neurobiological study determined that nicotine affects the activity of glutamate and myoinositol. Other studies examine smoking and stress, and whether testosterone and strength training can improve lung function in women with pulmonary disease.

A third area of focus is the gender differences in the response to smoking and nicotine. Researchers are using mice to investigate gender differences in smoking-induced cellular and genetic changes. Another group is testing whether women crave the taste of smoke more than men. Other investigators are using rats to determine whether female hormones act on dopaminergic systems to sensitize females to nicotine. A fourth area of focus is the effects of smoking and nicotine on the fetus or child. Several studies are investigating the effects of smoking on brain development and behavioral effects in children whose mothers smoked during pregnancy. Others are investigating effects of smoking and nicotine on neural cells, serotonin activity, catecholamine response, dopamine receptors, and growth factors. Other studies are researching effects on lung development. A nicotine vaccine given to the mother is being investigated in rats for its ability to protect the fetus from harmful effects of the drug. The mutagenic and carcinogenic properties of tobacco smoke on the fetus and child are being investigated. Investigators are also examining the interaction of tobacco smoke and naturally occurring genetic variations.

Addiction

Over 60 projects were identified that address various aspects of addiction. Both humans and animal models have been used for these studies. The first major area of focus involves biological effects of nicotine. Investigators are examining effects of gender and menstrual cycle on nicotine addiction and nicotine neuropharmacology. Several studies are examining the role of dopamine in nicotine addiction, including studies on the effects of nicotine on dopaminergic function in development, the role of dopamine in gender differences following nicotine administration, the effect of gonadal hormones on dopamine receptor responsiveness, and the genes involved in dopamine neurotransmission. Other studies are examining the long-term effect of nicotine on brain receptors and genetic influences on nicotine dependence and ability to quit smoking. Nicotine withdrawal is being studied for its effects on attention, and symptoms in adolescents, depressed smokers, and drinkers. The second major area of focus involves behavioral aspects of addiction. Differences between smokers' and nonsmokers' behavior, as well as racial differences in behavior are being studied. One group is attempting to identify predictors of relapse. To address women's concerns about postcessation weight gain and prevent relapse, various groups are testing exercise, cognitive behavior treatment, and estrogen replacement therapy. Other efforts to overcome addiction are testing motivational interventions, mood management therapy, and social support. A third major area of focus involves smoking cessation and relapse prevention efforts in pregnant women. Smoking cessation efforts include those described above for nonpregnant women, and additionally include telephone social support and voucher-based incentive programs. Relapse prevention efforts, in addition to those described above, include studies to understand successful coping strategies; behavior of women unable to overcome addiction; and the effect of mood, weight concerns, and the menstrual cycle on postpartum relapse.

Epidemiology & National Surveillance

Over 40 projects address epidemiology and surveillance of tobacco use and control efforts. The link between smoking and cancer is being investigated as a variable in a number of large studies, including the Nurses' Health Study, the Black Women's Health Study, the Cooperative Family Registry for Breast Cancer Studies, the California Teachers Study, and a very large Chinese study. In other efforts, women are being examined 3 and 5 years after a breast cancer diagnosis to uncover any links between smoking and the risk of disease-free and overall survival. Another group is examining links between smoking during pregnancy and breast cancer. Other studies are examining links between smoking and breast or lung cancer. Several researchers are examining the relationship between premenstrual symptoms and active smoking or passive smoke exposure. Another study seeks to determine whether protective effects of hormone replacement therapy are eliminated in women who smoke.

Other investigators are interviewing subgroups of women to determine why they initiate smoking; these subgroups include incarcerated women, African American women, and young, poor women. Efforts are being made to determine developmental precursors to the onset of tobacco use. Research is also being conducted on the biobehavioral factors influencing nicotine dependence in African American women. Another study will determine genetic and environmental factors that increase vulnerability to nicotine addiction. Investigators are collecting Medicaid data on tobacco dependence treatments, especially for pregnant smokers. Smoking cessation efforts include testing motivational interviewing, mood management group therapy, bupropion use, and a media campaign. Smoking cessation efforts for pregnant women use similar strategies, including motivational interviews, behavioral incentives, personal counseling, health messages, telephone counseling, nicotine gum, and mass media communications. Other investigators are researching smoking behavior in pregnant women. Several studies are examining the effect of maternal smoking on the fetus, including effects on birth weight, chromosomal damage, interactions with caffeine, and developmental decrements.

Interventions for Prevention & Treatment

More than 80 projects address tobacco control interventions to prevent tobacco use and to treat tobacco addiction. Several projects focus on prevention. Researchers are testing the use of anti-smoking socialization to prevent children of smoking parents to smoke themselves. An effort is examining the use of media campaigns to prevent Hispanic and White non-Hispanic children from smoking. Another effort examines the relationship between media exposure and cigarette smoking among teenage girls. Other researchers are determining the developmental precursors to substance use in girls.

The second major area of focus is treatment interventions. One effort is geared to female students. Another is testing estrogen replacement therapy for postmenopausal women to minimize weight gain and affect mood. A third effort is testing exercise for depressed women attempting smoking cessation. Several studies are examining gender and genetic influences on nicotine dependence. Other studies are testing treatments such as the antidepressants bupropion or fluoxetine, nicotine replacement, cognitive-behavioral therapy, group therapy, and exercise. Several studies are examining interventions that address postcessation weight gain. Researchers are testing many of the same interventions mentioned above, such as nicotine replacement, exercise, and cognitive-behavioral therapy. Another group recently tested a motivational message from a pediatric health care provider, self-help materials, and follow-up contacts to encourage mothers to quit smoking. Efforts are being made to incorporate tobacco treatment interventions into routine maternity case management and prenatal care services.

Another area focuses on cessation treatments for pregnant smokers. Information is being collected on the relationship between depression and smoking cessation in pregnancy. Another group is monitoring patterns of tobacco use among pregnant American Indian women. Interventions for pregnant women include education materials and programs, incentive programs, motivational enhancement therapy, telephone counseling, professional advice, nicotine replacement therapy, and bupropion treatment. Investigators are testing the use of a reimbursement system for encouraging smoking cessation in Medicaid recipients. A fourth area focuses on testing interventions for smoking relapse prevention during pregnancy and postpartum. Researchers are testing the use of bupropion for preventing postpartum relapse. Another effort is testing a self-help smoking relapse prevention computer intervention that uses momentary assessment techniques. "Stay Quit" booklets based on theory and research on smoking relapse are being developed.

Several activities are contributing to the development and testing of interventions for prevention and treatment of smoking. A national telephone Quitline is being offered and tested by the American Legacy Foundation. Several resources for smokers interested in quitting are provided

by the National Women's Health Information Center on the "A Breath of Fresh Air" website. Topics discussed in the recent meeting on women and smoking included prevention and cessation strategies for women and girls and novel cessation approaches.

Awareness, Risk Perception & Communications

Over 20 studies and activities were identified that have addressed or are addressing the effectiveness of various methods of communicating to women the known risks associated with smoking. Researchers are studying cigarette smoking behavior and media exposure among female teenagers of various ethnic groups toward adding gender-specific and culturally appropriate curricula to tobacco use prevention programs. Two efforts are testing multicomponent communication efforts: the first is examining the impact of a multicomponent health education intervention program on pregnant smokers, while the second is using three components (mass media-health communications, community organization, and professional practice) to communicate smoking risk to women. Another study is comparing media, support groups, posters, etc., for effectiveness in delivering information on smoking to female college students. Communication via counseling, nurse-delivered telephone support, help lines, multiple health providers, and interventions managed by a nurse and a lay health advisor are also being tested for efficacy. Another study is examining the use of a brief motivational message, self-help materials, and follow-up contacts. Other studies are disseminating educational materials for health professionals on prenatal tobacco cessation counseling. Activities relevant to this section include several media campaigns to increase awareness, encourage women to quit, and provide counseling approaches; and websites to provide information and resources to help women quit, and collect and distribute information regarding global issues regarding women and tobacco.

Community & Policy Interventions

Over two-dozen studies address policy, community, legal, and regulatory interventions in tobacco control. The first area of focus is development and testing of interventions to aid in quitting smoking. A study is collecting information about environmental tobacco smoke in African American mothers and newborns. In another study, researchers are strategizing methods to counteract the influences of tobacco marketing on adolescent females. Interventions such as the use of nicotine patches, and education and training by both lay and professional people are being tested for effectiveness. A dietary and activity educational program is being tested for potential dissemination through existing community organizations. The second area of focus is smoking cessation in pregnant women and prevention of relapse postpartum. The cessation studies use methods similar to those used for nonpregnant women, including nicotine replacement, educational programs, mass media communication, community organization intervention including social support networks, telephone counseling, and professional practice intervention. Other studies use a voucher-based incentive program, and a Quit and Win contest. Similarly, the relapse prevention studies are using telephone interviews, educational booklets, telephone counseling, motivational interviewing, and home health visits. A research study is investigating tobacco exposure levels for pregnant mothers and their babies from cigarette smoke (passive or active).

Several activities are contributing to community and policy interventions. The National Partnership to Help Pregnant Smokers Quit media campaign is working with communities and worksites to address the issue of smoking during pregnancy. They are encouraging employers to provide insurance coverage for smoking cessation, and are promoting economic and other policy interventions that will reduce maternal smoking. The American Legacy Foundation is providing a Quitline offering pregnant smokers free counseling. The recent Annual Investigator Meeting 2002 discussed a variety of topics, including tobacco industry marketing aimed at women.

Global Issues

Several studies and activities are addressing smoking issues internationally. A few major international studies on cancer include smoking status as a variable. Other efforts include a meeting in April 2003 sponsored by the World Health Organization focusing on women and tobacco in Africa; a media campaign entitled “European Week Against Cancer 2001: Women and Tobacco;” and a website for the International Network of Women Against Tobacco, with information such as fact sheets on smoking in various countries.